



Mindfulness for fluency in number facts

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Introduction

Work on 'mindfulness' has become very popular in education, albeit more in North America than in Europe, at a variety of ages and in a variety of settings. It is advocated for both for adults and children, teachers and learners within mainstream education, the health services, social and emotional learning, special education and mainstream subject-based work.

Outcomes are equally as varied. When taught effectively and practiced regularly, it has been shown to be capable of improving mental health and wellbeing, mood, self esteem, self regulation, positive behaviour and academic learning (Weare, 2013).

While there is an increasing amount of literature relating to the benefits of incorporating mindfulness into educational settings, much of this is associated with its role in promoting well-being, confidence and reducing anxiety, stress and fatigue in both teachers and learners in schools (*i.e.* Flook *et al.*, 2010; Mendelson *et al.*, 2010; Ricard *et al.* 2013; Black and Fernando, 2014; Wisher, 2014; Call *et al.*, 2014;). Some authors have alluded to the potential of mindfulness-based practice in working memory, attention and academic skills (Napoli *et al.*, 2005; Lillard, 2011; Sibinga *et al.*, 2013) but there is relatively little emphasis on measurable outcomes of mindfulness techniques on the cognitive processes associated with learning and understanding (Felver *et al.* 2015).

Mindfulness involves learning to direct our attention to our experience as it unfolds, moment by moment, with open-minded curiosity and acceptance. Rather than worrying about what has happened or might happen, it trains us to respond skilfully to whatever is happening right now, be that good or bad (Kabat-Zinn 2013)

Although it has its roots in early Buddhist teaching, virtually all mindfulness techniques are secular. Techniques vary. Meditation, Yoga and Tai chi are relaxation techniques that are often promoted and there are a variety of activities; both teacher- and child-led; that are advocated by a number of sources (for examples, visit <http://www.mindfulschools.org> and <http://mindfulnessinschools.org>). Links can be made to practices and outcomes associated with 'character' - and meta-cognitive approaches and links with recent work in neuroscience (Roedigger and Karpicke, 2006; Roedigger and Karpicke, 2006; Karpicke and Roedigger, 2007; McDaniel *et al.*, 2007; Boaler, 2013; Karpicke *et al.*, 2014).